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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,612	08/16/2006	Tamie Oyanagi	28951.5496	8662

53067 7590 02/11/2009

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EXAMINER	
ELBIN, JESSE A	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
02/11/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,612	OYANAGI, TAMIE	
	Examiner	Art Unit	
	JESSE A. ELBIN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed November 17, 2008 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,115,479. Although the conflicting claims are not identical, they are not patentably distinct from each other because adjusting the concentration of flame retardant in a wax base is well within one of ordinary skill in the art's skill, with a minimal amount of experimentation, to attain a desired flame retardance, and mechanical strength. Further, the differences in the claims between the Instant Application and Patent 6,115,479 are all known in the art, or rendered obvious in view of the prior art of record as described in the art rejections below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuzawa et al. (US Patent 6,115,479 ('479)) in view of Applicant's admitted prior art (supported by Daihachi Chemical Industry co., ltd. Website; henceforth referred to as *Daihachi*) in view of Asano (US PGPub 2001/0007888 ('888)).

Regarding claim 1, Okuzawa teaches a loudspeaker copper foil wire ('479 abstract) comprising a copper foil wire body ('479 Fig. 1 #8-9) impregnated or coated with a flame resistant wax ('479 col. 2 lines 48-51 and Fig. 1), the flame resistant wax comprising a petroleum paraffin wax ('479 col. 2 lines 52-53) and 5 wt % to 50 wt % of a halogen-free aromatic condensation phosphoric ester flame retardant ("phosphoric ester flame retardant"; '479 col. 2 lines 54-55).

Okuzawa does not explicitly teach the flame retardant being a halogen-free aromatic condensation phosphoric ester flame retardant, nor the concentration of the flame retardant being 5 wt% to 50 wt%.

Applicant admits that halogen-free aromatic condensation phosphoric ester flame retardant is known in the art and is commercially available under the product number PX-200 from Daihachi Chemical Industry Co., Ltd. (page 7 paragraph 3); wherein *Daihachi* lists PX-200 as being a "White powder to granule (*Daihachi*; "PX-200 Aromatic polyphosphate").

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a halogen-free flame retardant in the loudspeaker wire taught by Okuzawa for the benefit of reducing the environmental impact of using halogenated compounds in manufacturing.

Neither Okuzawa, nor Applicant's admitted prior art explicitly teach the concentration of flame retardant being 5 wt% to 50 wt%.

Addressing the same problem as the inventor, Asano teaches creating a flame retardant resin composition comprising non-halogen flame retardant ('888 abstract) in a concentration of 1 to 60 parts by weight ('888 [0064]). Asano further teaches the concentration of flame retardant will result in acquiring a desired flame retardance ('888 [0040] last 2 lines).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a concentration of flame retardant in the range of 5 wt% to 50 wt % as taught by Asano in the loudspeaker wire taught by the combination of Okuzawa and Applicant's admitted prior art.

Regarding claim 2, Okuzawa, Applicant's admitted prior art and Asano remain as applied above.

Applicant's admitted prior art further teaches the halogen-free aromatic condensation phosphoric ester flame retardant (i.e. PX-200) has a melting point of 80°C to 140°C and a decomposition temperature of not lower than 250°C (page 7, second paragraph, lines 11-14).

Regarding claim 3, Okuzawa, Applicant's admitted prior art and Asano remain as applied above.

Okuzawa further teaches the copper foil wire body includes a plurality of core threads ('479 Fig. 1 #8) each wrapped with a copper foil ('479 Fig. 1 #9) and braided or stranded ('479 col. 2 line 44).

Regarding claim 4, Okuzawa, Applicant's admitted prior art and Asano remain as applied above.

Applicant's admitted prior art further teaches a magnetic circuit (Fig. 2 #1); a frame (Fig. 2 #2) mounted on the magnetic circuit (page 1, paragraph 5, line 1); a voice coil (Fig. 2 #6) fitted in a magnetic gap of the magnetic circuit (page 1, paragraph 5, lines 2-3); a vibration diaphragm (Fig. 2 #3) having an inner rim connected to the voice coil and an outer rim connected to the frame (page 1, paragraph 5, lines 4-7); an external connection terminal (Fig. 2 #5) attached to the frame (page 1, paragraph 5, lines 7-9); and a pair of copper foil wires (Fig. 2 #7) connected to opposite ends of the voice coil at one-side ends thereof and connected to the external connection terminal at the other-side ends thereof (page 1, paragraph 6 lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the heat-resistant wire taught by the combination of Okuzawa, Applicant's admitted prior at, and Asano in the prior art speaker, described by Applicant for the benefit of creating a speaker capable of being driven with higher power.

Response to Arguments

6. Applicant's arguments filed November 17, 2008 have been fully considered but they are not persuasive.

a. Applicant argues that it would not "have been obvious to one of ordinary skill to modify any of '479 claims 1-3 to render obvious applicant's claims" (page

3, paragraph 3). Examiner respectfully disagrees, as use of a "powder or particulate" flame retardant as stated in amended claim 1 of the instant application is known in the art. Applicant admits use of the commercially available PX-200 product being a "white powdery or particulate substance" (page 7, paragraph 4; further supported by Daihachi Chemical Industry Co., Ltd product information page, see rejection of claim 1 above). Further it is within the skill level of one of ordinary skill in the art, with a minimal amount of experimentation to alter the concentration of flame retardant compound to attain a desired range of flame resistance or melting point.

b. Applicant argues that "the specification [of '479] teaches away from modifying the claims" (page 3, paragraph 4). While Examiner agrees to the content of the specification of '479, Examiner disagrees that one of ordinary skill in the art would be required to modify the ranges specified in claim 1. The range specified in claim 1 is "5 wt% to 50 wt%" wherein '479, claim 1 states a concentration of "50 wt%-150 wt%". While the ranges are different, they share a common point of "50 wt%". As such the ranges would be obvious variants, after a minimal amount of experimentation by one of ordinary skill in the art. Further, one of ordinary skill in the art would recognize the need to alter the concentration if the flame retardant material was altered, as described in item 'a' above.

c. Applicant argues that "AAPA discloses the existence of a halogen-free aromatic condensation phosphoric ester flame retardant (PX-200), but fails to disclose any reason to combine PX-200 with Okuzawa '479 and Asano" (p. 4,

last 3 lines of paragraph 2). Examiner agrees, however one of ordinary skill in the art, at the time of the invention would recognize the obvious motivation to use non-halogenated compounds. Halogens are generally dangerous to the environment and people, and require extra care during manufacturing and use. Non-halogenated compounds are beneficial in that they require fewer (or less severe) precautions during manufacturing, use, and final disposal of the product. Therefore, one of ordinary skill in the art, at the time of the invention, would recognize the obvious benefits for replacing the halogenated flame retardant as taught by '479 with the non-halogenated flame retardant as taught by AAPA.

d. Regarding Applicant's arguments regarding the 5-50 wt% and 50-150 wt% ratios, see item 'b' above.

e. Applicant argues that "one of ordinary skill would not have combined the flame retardant wt% of Asano with either AAPA or Okuzawa, because Asano discloses only adding flame retardant to resin, which has different characteristics than wax" (page 4, paragraph 4). While Examiner agrees that a "resin" and a "wax" have different properties; Examiner disagrees that this difference would prevent one of ordinary skill in the art from combining said references. All references cite wide ranges of wt% used to attain desired properties. As such, one of ordinary skill in the art must experiment to find the relative proportions necessary to reach the design goals relating to fire resistance, flexibility, manufacturability, etc. Whereby, if any particular ingredient changes (i.e. resin changes to wax), one of ordinary skill in the art, with a minimal amount of

experimentation would be able to adjust the particular wt% ratios to compensate for the differences in characteristics.

f. Applicant further argues that "Nor would one of ordinary skill have applied characteristics of a resin, to a copper wire for a loudspeaker, which must be flexible" (page 4, paragraph 4, end). Examiner disagrees with this argument, as nothing in the claim requires the material be flexible. Further, it is most common to use the flame retardant wax/resin to secure the wire to a component, which is flammable (i.e. the voice coil bobbin, or paper diaphragm). The portion of the copper wire that must be flexible (typically connecting the paper diaphragm to the bobbin) does not require flame retardant material, as it is exposed only to the air, both cooling the wire, and reducing flammability risk.

g. Applicant argues "coating a loudspeaker copper foil wire with a flame resistant wax…results in unexpected benefits over the prior art" (page 5, paragraph 1). Examiner respectfully disagrees with this argument, as the unexpected benefits listed are inherent to use of the commercially available flame retardant in proportions common in the art, and well within the skill level of one of ordinary skill in the art.

h. Further, Examiner respectfully disagrees that "the weight percentage of flame retardant is smaller than that of Okuzawa '479" (p. 5 lines 4-5) as both '479, and the instant application list 50 wt% as an appropriate concentration, yielding an identical weight.

i. Further, Applicant states that "the flexural strength of the wax-coated wire of claim 1-3 is superior to that of Okuzawa '479 (p. 5, lines 6-7). Examiner respectfully disagrees, as the test results documented "in Table 1, "Flexural strength of copper foil wire" show nearly identical results between the Prior Art (Okuzawa '479) and "Copper foil wire A" which is a 5 wt% detailed by the instant application. In fact, all iterations of the present invention show a minimum range value of "23000" for "Bending strength" wherein the Prior art wire lists "23000" as a maximum. While Examiner agrees there is a difference in ranges listed, the table does not suggest that there is a significant gain over the prior art in terms of "Bending strength".

j. Lastly, Applicant argues that "even thought he weight percentage of flame retardant is less than in Okuzawa '479, the flame resistance of the wax recited in applicant's claims is excellent" (p. 5, lines 7-9). Examiner respectfully disagrees with this argument, as Table 1 lists the "Prior art copper foil wire" and "Copper foil wire A" (5 wt%) both having a "V-2" flame resistance based on UL-94. While there may be a different in Bending strength, the 5 wt% wax based on the instant application, and the prior art wax perform identically in terms of "Flame resistance".

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSE A. ELBIN whose telephone number is (571)270-3710. The examiner can normally be reached on Monday through Friday, 9:00am to 6:00pm EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. E./
Examiner, Art Unit 2614